

STATE OF TENNESSEE DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201 TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763 **Lab ID:** N00005018 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00005018001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

KINGSTON WTP

Date/Time Collected: Sampler's Name:

09/09/2009 09:10

County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS TDEC-DWS

Agency Invoiced: Priority Date:

Date/Time Received:

09/09/2009

Received By:

L Barrociere

11:40

Field Determinations

pH:

Chlorine, residual: Conductivity:

Temperature: Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total	WE.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	69	mg/L	3.8	10	M Chen	9/10/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	53	mg/L	0.7	1	M Chen	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

nber: N00005018002

Project Name:

Sample Description:

ption: KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

KINGSTON WTP

Date/Time Collected: (

09/09/2009 09:15

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency: Billing Code:

Knoxville TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

09/09/2009 11:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual:

Conductivity: Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	70	mg/L	3.8	10	M Chen	9/10/2009

TEST: Hardness, Calcium			METHOD: SM 3500-Ca D					
ANALYTE			RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness			53	mg/L	0.7	1	M Chen	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

Project Name:

N00005018003

Sample Description:

Date/Time Collected:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

ROCKWOOD WTP 09/09/2009 09:50

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix: **ROANE - 73**

EFO:

Water Knoxville TDEC-DWS 327.39-12

Billing Code: Send Report To: Agency Invoiced:

Sampling Agency:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

09/09/2009 11:40

Received By:

L Barrociere

pH: Chlorine, residual:

Field Determinations

Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Alkalinity, Total	ME	METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	87	mg/L	3.8	10	M Chen	9/10/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					*****
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	66	mg/L	0.7	1	M Chen	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

Project Name:

N00005018004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

ROCKWOOD WTP

Date/Time Collected: Sampler's Name:

09/09/2009 09:55 GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

Sample EFO: Water

Sampling Agency: Billing Code:

Knoxville TDEC-DWS 327.39-12

Send Report To:
Agency Invoiced:

TDEC-DWS
TDEC-DWS

Priority Date:

Date/Time Received:

09/09/2009

11:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total	 METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	76	mg/L	3.8	10	M Chen	9/10/2009	

	* **					
TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	68	mg/L	0.7	1	M Chen	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



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Sampling Agency: TDEC: Division of Water Supply

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This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00005018001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

KINGSTON WTP

Date/Time Collected:

09/09/2009 09:10

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville **TDEC-DWS**

Billing Code: Send Report To: 327.39-12 **TDEC-DWS**

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

09/09/2009 11:40

Received By:

L Barrociere

Field Determinations pH:

Chlorine, residual: Conductivity: Temperature:

Dissolved Oxygen: Other:

Flow:

CFS

TEST: Digestion Metals	MET		*			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/10/2009				M Pattanayek	9/10/2009

TEST: ICP-MS	ME:	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/10/2009
Barium	23	μg/L	2.5	5	M Pattanayek	9/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/10/2009
Chromium	. U	μg/L	2.0	5	M Pattanayek	9/10/2009
Cobalt	0.069J	μg/L	0.04	1	M Pattanayek	9/10/2009
Lead	U	μg/L	0.10	1	M Pattanayek	9/10/2009
Manganese	· U	μg/L	0.42	1	M Pattanayek	9/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/10/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	9/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/10/2009

TEST: Mercury	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005018002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

KINGSTON WTP 09/09/2009 09:15

Sampler's Name:

Date/Time Collected:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: Billing Code:

TDEC-DWS

Send Report To:

327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

09/09/2009 11:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/10/2009				M Pattanayek	9/10/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/10/2009	
Barium	23	μg/L	2.5	5	M Pattanayek	9/10/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/10/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/10/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	9/10/2009	
Cobalt	0.13J	μg/L	0.04	1	M Pattanayek	9/10/2009	
Lead	0.26J	μg/L	0.10	1	M Pattanayek	9/10/2009	
Manganese	28	μg/L	0.42	1	M Pattanayek	9/10/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	9/10/2009	
Thallium	U	μg/L	0.03	1	M Pattanayek	9/10/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/10/2009	

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005018003

Project Name:

Sample Description: **ROCKWOOD WTP**

Sampler Project Name: RAW

Project Site No.:

Station No.:

ROCKWOOD WTP 09/09/2009 09:50

Date/Time Collected: Sampler's Name:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 **TDEC-DWS**

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

09/09/2009 11:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Digestion Metals	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/10/2009				M Pattanayek	9/10/2009

TEST: ICP-MS	ME.	THOD: EPA 20				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	9/10/2009
Barium	28	μg/L	2.5	5	M Pattanayek	9/10/2009
Beryllium	. U	μg/L	0.11	1	M Pattanayek	9/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	9/10/2009
Cobalt	0.091J	μg/L	0.04	1	M Pattanayek	9/10/2009
Lead	U	μg/L	0.10	1	M Pattanayek	9/10/2009
Manganese	5.6	μg/L	0.42	1	M Pattanayek	9/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/10/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	9/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/10/2009

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	· U	μg/L	0.029	0.2	A Bass	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00005018004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

ROCKWOOD WTP 09/09/2009 09:55

Sampler's Name:

Date/Time Collected:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS TDEC-DWS

Agency Invoiced:

Priority Date:
Date/Time Received:

09/09/2009 11:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

CFS

TEST: Digestion Metals	MET	METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/10/2009				M Pattanayek	9/10/2009

TEST: ICP-MS	ME	ΓHOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/10/2009
Barium	34	μg/L	2.5	5	M Pattanayek	9/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/10/2009
Cadmium	. U	μg/L	0.41	1	M Pattanayek	9/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	9/10/2009
Cobalt	0.071J	μg/L	0.04	1	M Pattanayek	9/10/2009
Lead	U	μg/L	0.10	1	M Pattanayek	9/10/2009
Manganese	1.2	μg/L	0.42	1	M Pattanavek	9/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/10/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	9/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/10/2009

TEST: Mercury	ME	THOD: EPA 24	5.1	**		
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	9/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit